

REMARKS/ARGUMENTS

By this amendment, claims 1, 4, 7, 11-14 and 19 are amended, leaving claims 2, 3, 6, 8-10, 15-18 and 20 unchanged. Claim 5 was previously canceled.

Claims 1-4, 6, 8-13 and 18-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kakuta et al. (USPN 6,378,160) in view of Frey et al. (USPN 5,337,439).

Claims 7 and 14-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kakuta et al. in view of Frey et al., and further in view of Horng (GB Publication 2,375,158).

Kakuta discloses a windshield wiper device for use in a vehicle with a bearing shaft on which a wiper lever is held. In order to fasten the wiper lever to the bearing shaft, a fastening groove is formed in the bearing shaft, and a C-shaped fastening ring 10 having a **circular** cross section is inserted into said fastening groove 1a. The fastening groove has a tapered groove side surface 1b on the side facing the wiper lever. Kakuta does not teach or suggest, among other things, a recess that encompasses at least one slope in the axial direction of the wiper shaft, along which the locking element can glide when a predetermined, essentially axial force in the direction of the longitudinal axis is applied to the wiper shaft, and that the angle of the slope with respect to the longitudinal axis of the wiper shaft is determined as a function of the force such that the locking element glides on the at least one slope on the wiper shaft in response to the force along the longitudinal axis of the wiper shaft, and that the force is between about 800 N and about 3000 N. Therefore, Kakuta does not teach or suggest each and every element of independent claim 1.

Kakuta teaches, according to column 2, lines 6 to 14, that the tapered groove side surface 1b serves to be able to easily release the wiper lever from the wiper bearing. It furthermore emerges from the configuration that the fastening ring 10 is intended to be released from the fastening groove 1b in the event of a large load applied from the outside so that the wiper lever absorbs the load by the bearing shaft moving downward within the holder 2 thereof. However, said load compensation is only provided to prevent the entire windshield wiper device or the vehicle body from having to fully absorb a load of this type. Such a load could damage diverse

subassemblies, which could require that various components of the windshield wiper device be replaced.

In contrast, Kakuta does not disclose the fastening groove and the fastening ring according to the claimed invention. Rather, because of the structure of the fastening groove and the C piece, the fastening ring moves out of the fastening groove only upon a previously definable application of force. Therefore, the bearing shaft of the wiper lever moves downward only when said previously definable application of force is exceeded. By means of the configuration of the claimed fastening groove, for example with respect to the angle of slope of the bevel and the choice of the material and of the cross section C piece and the associated friction values between the bevel and C piece, setting of a specific maximum load is possible. Kakuta does not teach or suggest a structure in which such a maximum load is easily calculable. Additionally, even if such a load is calculable, Kakuta does not disclose that such a load is between about 800 N and about 3000 N.

Further, Kakuta does not even touch upon the problem of protection of individuals in the event of impact. Applicant notes that Kakuta has already been discussed and acknowledged in the introductory part of the application, for example on page 2, paragraph 2. With regard thereto, it is explained that the axial force that is required to push in the wiper shaft into the accommodating means of Kakuta is too undefined and, as a result, effective pedestrian impact protection can only be realized in an inadequate manner. Therefore, one of ordinary skill in the art would not turn to Kakuta when designing a wiper device configured to detach from a vehicle upon pedestrian impact.

Frey does not cure the deficiencies of Kakuta. Rather, Frey discloses a cleaning unit for a headlamp of a vehicle, in which the shaft is intended to be releasable in the axial direction should a frontal load occur. Accordingly, preventing damage to the wiper drive or the front headlamp is also the primary objective here. The provision of pedestrian impact protection is not touched upon in the Frey document. Furthermore, it should be noted that the application text is also at odds with the prior art disclosed in Frey in the introductory part of the description thereof. As is also already apparent from the technical drawing in Frey, this solution is relatively complicated, costly and, furthermore, problematic in terms of manufacturing the locking element.

It is explained in the description in Frey that to axially lock the wiper shaft, a locking element is provided, which is embodied as a disk shaped snap ring 8. Although the snap ring 8 is oriented concentrically with respect to the axis 25, the snap ring 8 is provided in a fastening groove 6 and contained within annular groove 5. Therefore, the snap ring 8 cannot slide along the bevel section 7 shown in figure 1, as suggested by the examiner. The snap ring 8 is expanded only in the region of the bevel section 7. However, simply due to the formation of a sleeve surrounding the snap ring 8, sliding along one of the surfaces of the snap ring 8 with the square cross-sectional area thereof is not possible at all. Also, if the free end of the bearing shaft moves downward, the disk shaped snap ring is bent open. Only as a result thereof can the bearing shaft yield into the vehicle body. In Frey, the disk shaped snap ring is first of all correspondingly bent open only in the region of the bevel section 7, but this requires plastic deformation and possible destruction of the disk shaped snap ring, since no expansion which is distributed uniformly over the circumference of the disk shaped snap ring takes place. Therefore, if necessary, the disk shaped snap ring should be replaced upon every intended or unintentional release from the fastening groove due to the associated deformation of the disk shaped snap ring, which is associated with further costs.

It is therefore clearly apparent that a combination of the Kakuta and Frey documents cannot result in the formation according to the claimed invention of the fastening groove and disk shaped snap ring. In a combination of the two documents, an adjustment by means of a defined force for release purposes in an impact is not possible.

Added to this is the fact that neither Kakuta nor Frey addresses the problem of pedestrian impact protection at all. Therefore, a person skilled in the art concerned with this problem will not consciously use the teaching disclosed in Kakuta or Frey. It is also not apparent why a person skilled in the art would use and combine the Kakuta and Frey documents in order to find a solution to a problem that neither Kakuta nor Frey addresses.

Horng does not cure the deficiencies of Kakuta and Frey. Specifically, at no point in Horng is an adjustment of a defined force between the groove and ring mentioned as impact protection. The disclosure of Horng is focused on avoiding damage to the mounting for the rotor

shaft during installation or removal. The problem of pedestrian impact protection is not touched upon here either, and therefore the arguments made with regard to Frey also apply to Horng.

Further, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kakuta and Frey with Horng, as suggested by the examiner. One of ordinary skill in the art would not look to the rotor shaft 91, bearing 94 and axle tube 95 of Horng that is designed to reduce scratching when the shaft 91 is inserted into a bearing 94 of soft material when designing a wiper arm connection of Kakuta.

In summary, Kakuta, Frey and Horng, by themselves or in combination, do not teach or suggest the subject matter of the claimed invention.

Allowance of claims 1-4 and 6-20 is respectfully requested. If a conference call would be useful in resolving issues arising from the filing of this communication, please contact the undersigned at the below-designated number.

Respectfully submitted,

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